

Amendments to the Claims:

Please add new claim 40, cancel claim 26 without prejudice or disclaimer of the subject matter recited therein and amend claims 2-13 and 15-25 as shown below. This listing of claims will replace all prior versions, and listings of claims in the application:

1. (Original) A method of creating a non-hydrochlorofluorocarbon refrigerant mixture, capable of providing temperatures as low as about -150° C, comprising the steps of:
adding non-hydrochlorofluorocarbon refrigerants to refrigerant R740.

2. (Currently Amended) The method of claim 1, wherein said non-hydrochlorofluorocarbon refrigerants consist of:

R14;

~~any one refrigerant from the group consisting of R134a; R152a and R290;~~

any one refrigerant from the group consisting of R227ea, R236fa, RC318, R600 and R600a; and

any one refrigerant from the group consisting of R116, R170, R508a, R508b and R1150.

3. (Currently Amended) The method of claim 1, wherein said non-hydrochlorofluorocarbon refrigerants consist of:

R14;

any one refrigerant from the group consisting of R134a; R152a and R290;

any one refrigerant from the group consisting of R236ea, R245ca and R245fa; and

any one refrigerant from the group consisting of R116, R170, R508a, R508b and R1150.

4. (Currently Amended) The method of claim 1, wherein said non-hydrochlorofluorocarbon refrigerants consist of:

R14;

R50;

~~any one refrigerant from the group consisting of R134a; R152a and R290;~~

any one refrigerant from the group consisting of R236ea, R245ca and R245fa; and

any one refrigerant from the group consisting of R23, R116, R170, R508a, R508b and R1150.

5. (Currently Amended) The method of claim 1, wherein said non-hydrochlorofluorocarbon refrigerants consist of:

R14;

R50;

any one refrigerant from the group consisting of R134a; R152a and R290;

any one refrigerant from the group consisting of R227ea, R236fa, RC318, R600 and R600a; and

any one refrigerant from the group consisting of ~~R23, R116, R170, R508a, R508b~~ and R1150.

6. (Currently Amended) The method of claim 1, wherein said non-hydrochlorofluorocarbon refrigerants consist of:

R50;

~~any one refrigerant from the group consisting of R134a, R152a and R290;~~

any one refrigerant from the group consisting of R227ea, R236fa, RC318, R600 and R600a; and

any one refrigerant from the group consisting of R23, R116, R170, R508a, R508b and R1150.

7. (Currently Amended) The method of claim 1, wherein said non-hydrochlorofluorocarbon refrigerants consists of:

R14;

R50;

any one refrigerant from the group consisting of R236ea, R245ca and R245fa;

any one refrigerant from the group consisting of ~~R227ea, R236fa~~, RC318, R600 and R600a;

any one refrigerant from the group consisting of R134a, R152a and R290; and

any one refrigerant from the group consisting of R23, R116, R170, R508a, R508b and R1150.

8. (Currently Amended) The method of claim 1, wherein said non-hydrochlorofluorocarbon refrigerants consists of:

R50;

any one refrigerant from the group consisting of R236ea, R245ca and R245fa;

any one refrigerant from the group consisting of ~~R227ea, R236fa,~~ RC318, R600 and R600a;

any one refrigerant from the group consisting of R134a, R152a and R290; and

any one refrigerant from the group consisting of R23, R116, R170, R508a, R508b and R1150.

9. (Currently Amended) The method of claim 1, wherein said non-hydrochlorofluorocarbon refrigerants consist of:

R14;

any one refrigerant from the group consisting of R134a; R152a and R290;

any one refrigerant from the group consisting of ~~R227ea, R236fa,~~ RC318, R600 and R600a;

any one refrigerant from the group consisting of R236ea, R245ca and R245fa; and

any one refrigerant from the group consisting of R116, R170, R508a, R508b and R1150.

10. (Currently Amended) The method of claim 1, wherein said non-hydrochlorofluorocarbon refrigerants consists of:

R14;

R50;

any one refrigerant from the group consisting of R236ea, R245ca and R245fa;

any one refrigerant from the group consisting of ~~R227ea, R236fa,~~ RC318, R600 and R600a; and

any one refrigerant from the group consisting of R23, R116, R170, R508a, R508b and R1150.

11. (Currently Amended) The method of claim 1, wherein said non-hydrochlorofluorocarbon refrigerants consist of:

R14;

any one refrigerant from the group consisting of ~~R227ea, R236fa,~~ RC318, R600 and R600a;

any one refrigerant from the group consisting of R236ea, R245ca and R245fa; and

any one refrigerant from the group consisting of R116, R170, R508a, R508b and R1150.

12. (Currently Amended) The method of claim 1, wherein said non-hydrochlorofluorocarbon refrigerants consist of:

R50;

any one refrigerant from the group consisting of R134a; R152a and R290;

any one refrigerant from the group consisting of R236ea, R245ca and R245fa; and

any one refrigerant from the group consisting of ~~R23, R116, R170,~~ R508a, R508b and R1150.

13. (Currently Amended) The method of claim 1, wherein said non-hydrochlorofluorocarbon refrigerants consist of:

R50;

any one refrigerant from the group consisting of ~~R227ea, R236fa,~~ RC318, R600 and R600a;

any one refrigerant from the group consisting of R236ea, R245ca and R245fa; and

any one refrigerant from the group consisting of ~~R23,~~ R116, R170, R508a, R508b and R1150.

14. (Original) A non-hydrochlorofluorocarbon refrigerant mixture for use in a refrigeration system capable of providing temperatures as low as about -150° C, consisting of:

R740 and at least four non-hydrochlorofluorocarbon refrigerants.

15. (Currently Amended) The refrigerant mixture according to claim 14, wherein said non-hydrochlorofluorocarbon refrigerants consist of:

R14;

~~any one refrigerant from the group consisting of R134a, R152a and R290;~~

any one refrigerant from the group consisting of R227ea, R236fa, RC318, R600 and R600a; and

any one refrigerant from the group consisting of R116, R170, R508a, R508b and R1150.

16. (Currently Amended) The refrigerant mixture according to claim 14, wherein said non-hydrochlorofluorocarbon refrigerants consist of:

R14;

any one refrigerant from the group consisting of R134a; R152a and R290;

any one refrigerant from the group consisting of R236ea, R245ca and R245fa; and
any one refrigerant from the group consisting of R116, ~~R170~~, R508a, R508b and R1150.

17. (Currently Amended) The refrigerant mixture according to claim 14, wherein said non-hydrochlorofluorocarbon refrigerants consist of:

R14;

R50;

~~any one refrigerant from the group consisting of R134a; R152a and R290;~~

any one refrigerant from the group consisting of R236ea, R245ca and R245fa; and

any one refrigerant from the group consisting of R23, R116, R170, R508a, R508b and R1150.

18. (Currently Amended) The refrigerant mixture according to claim 14, wherein said non-hydrochlorofluorocarbon refrigerants consist of:

R14;

R50;

any one refrigerant from the group consisting of R134a; R152a and R290;

any one refrigerant from the group consisting of ~~R227ea, R236fa~~, RC318, R600 and R600a; and

any one refrigerant from the group consisting of R23, R116, R170, R508a, R508b and R1150.

19. (Currently Amended) The refrigerant mixture according to claim 14, wherein said non-hydrochlorofluorocarbon refrigerants consist of:

R50;

~~any one refrigerant from the group consisting of R134a, R152a and R290;~~

any one refrigerant from the group consisting of R227ea, R236fa, RC318, R600 and R600a; and

any one refrigerant from the group consisting of R23, R116, R170, R508a, R508b and R1150.

20. (Currently Amended) The refrigerant mixture according to claim 14, wherein said non-hydrochlorofluorocarbon refrigerants consist of:

R14;

R50;

any one refrigerant from the group consisting of R236ea, R245ca and R245fa;

any one refrigerant from the group consisting of ~~R227ea, R236fa,~~ RC318, R600 and R600a;

any one refrigerant from the group consisting of R134a, R152a and R290; and

any one refrigerant from the group consisting of R23, R116, R170, R508a, R508b and R1150.

21. (Currently Amended) The refrigerant mixture according to claim 14, wherein said non-hydrochlorofluorocarbon refrigerants consist of:

R50;

any one refrigerant from the group consisting of R236ea, R245ca and R245fa;

any one refrigerant from the group consisting of ~~R227ea, R236fa,~~ RC318, R600 and R600a;

any one refrigerant from the group consisting of R134a, R152a and R290; and

any one refrigerant from the group consisting of R23, R116, R170, R508a, R508b and R1150.

22. (Currently Amended) The refrigerant mixture according to claim 14, wherein said non-hydrochlorofluorocarbon refrigerants consist of:

R14;

any one refrigerant from the group consisting of R134a; R152a and R290;

any one refrigerant from the group consisting of R227ea, R236fa, RC318, R600 and R600a;

any one refrigerant from the group consisting of R236ea, R245ca and R245fa; and

any one refrigerant from the group consisting of R116, ~~R170,~~ R508a, R508b and R1150.

23. (Currently Amended) The refrigerant mixture according to claim 14, wherein said non-hydrochlorofluorocarbon refrigerants consist of:

R14;

R50;

any one refrigerant from the group consisting of R236ea, R245ca and R245fa;

any one refrigerant from the group consisting of R227ea, R236fa, RC318, R600 and R600a; and

any one refrigerant from the group consisting of ~~R23~~, R116, ~~R170~~, R508a, R508b and R1150.

24. (Currently Amended) The refrigerant mixture according to claim 14, wherein said non-hydrochlorofluorocarbon refrigerants consist of:

R14;

any one refrigerant from the group consisting of ~~R227ea, R236fa~~, RC318, R600 and R600a;

any one refrigerant from the group consisting of R236ea, R245ca and R245fa; and

any one refrigerant from the group consisting of R116, R170, R508a, R508b and R1150.

25. (Currently Amended) The refrigerant mixture according to claim 14, wherein said non-hydrochlorofluorocarbon refrigerants consist of:

R50;

any one refrigerant from the group consisting of R134a; R152a and R290;

any one refrigerant from the group consisting of R236ea, R245ca and R245fa; and

any one refrigerant from the group consisting of ~~R23~~, R116, ~~R170~~, R508a, R508b and R1150.

Claims 26 – 39 (Cancelled)

40. (New) The method of claim 1, further comprising:

circulating the non-hydrochlorofluorocarbon refrigerants and the refrigerant R740 through a compressor, an auxiliary condenser connected to the compressor, a liquid/gas separator connected to the auxiliary condenser, a first condenser connected to the liquid/gas separator, a second condenser connected to the first condenser, a third condenser connected to the second condenser and a subcooler connected to the third condenser;

subcooling the non-hydrochlorofluorocarbon refrigerants and the refrigerant R740;

distributing the non-hydrochlorofluorocarbon refrigerants and the refrigerant R740 from the liquid/gas separator to a first expander and a second expander;

forming a first expanded stream and a second expanded stream in the first expander and the second expander, respectively;

returning the first expanded stream to the auxiliary condenser and the compressor; and

delivering the second expanded stream to the first condenser.